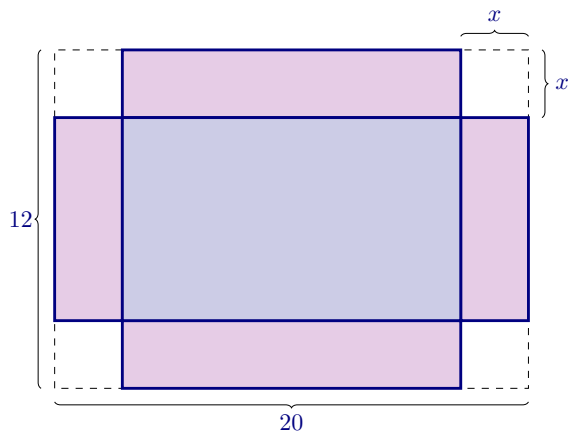**Exercise   1** *A box with an open top is to be constructed from a rectangular piece of cardboard with dimensions* $12\,\mathrm{cm}$ *by* $20\,\mathrm{cm}$ *by cutting out equal squares of side x at each corner and then folding up the sides:*

Express the volume V of the box as a function of x. (In factored form)

$$V(x) = \boxed{x(20-2x)(12-2x)}$$

Feedback($\mathtt{attempt}$):   *When folded up, what is the width of the box in terms of x? The length? The height?*

Exercise   2 *Multiply out your answer above:*

$$V(x) = \boxed{4}\,x^3 + \boxed{-64}\,x^2 + \boxed{240}\,x$$

Exercise   3 *If x increases in value from 1 to $(1+h)$, by how much will volume of the box change? Simplify.*

$$V(1+h) - V(1) = \boxed{4}\,h^3 + \boxed{-52}\,h^2 + \boxed{124}\,h$$

Hint: *You found $V(x)$ above. Plug in $x = 1+h$ and $x = 1$, then subtract and simplify.*